



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Applied Economics M

2425-2-F8204B011

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#### Learning objectives

The applied economist is more and more required to link economic theory with econometric, mathematical as well as statistical techniques, in order to interpret the behaviour and evolution of key economic variables.

This course concentrates on a set of classical economic relationships, within the fields of microeconomics, macroeconomics, energy and environmental economics, with the aim of illustrating the more relevant implications in terms of contemporary economic theory.

Each relationship is then discussed from the viewpoint of the applied economists, who is required to estimate and test each relation on the basis of the available empirical evidence.

The theoretical issues analyzed in each lecture are then reconsidered in the lab classes, where students are invited to apply the theoretical models to real as well as simulated datasets using the econometric software Stata.

#### Contents

Costs, learning curve and economies of scale.

Wage determinants and wage discrimination .

The aggregate investment function.

The relationship between sales and advertising.

Rational expectations and macroeconomic models.

Quality of the environment and the level of economic activity.

Models for energy demand.

## **Detailed program**

Costs, learning curves and economies of scale: the relevant economic theory, definition of learning curve and Cobb-Douglas cost function, measurement problems, omitted variables and estimation biases.

Wage determinants and wage discrimination: the human capital model, measurement problems, functional forms.

The aggregate investment function: investment and stock of capital, the flexible accelerator model, the neoclassical model of investment, Tobin's Q, adjustment costs, econometric issues.

The relationship between sales and advertising: economic determinants, simultaneity, identification, effects of temporal aggregation.

Rational expectations and macroeconomic models: unemployment rate and Phillips curve, parameter stability and economic policy changes, simultaneous equations systems.

Environmental quality and the level of economic activity: representation and estimation of the Environmental Kuznets Curve with cross-sectional and panel data.

Models for energy demand: demand for electricity, demand for fossil fuels (oil and natural gas).

## **Prerequisites**

No formal propedeuticity is required. However, students are strongly advised to pass the exam of the course of Econometrics and the exam of the course of Analysis of Economic Time Series and Longitudinal Data.

## **Teaching methods**

All lectures are held in presence, with standard teaching modalities. In particular, 12 lectures of 2 hours held in presence with standard teaching modalities and 6 lecture of 3 hours held in presence with standard teaching modalities. In some lectures student are asked to use their own pc's and the econometric/statistical software Stata.

## **Assessment methods**

The final exam, which is unique, is written and closed-book, with open questions, problems and exercises. The exam aims at evaluating both the theoretical (formal description of the main economic problems and questions discussed during lectures) and empirical (critical interpretation of the output from the econometric models translating the main economic problems and questions of interest for the applied economist) skills gained during the course.

## **Textbooks and Reading Materials**

E.R. Berndt, The Practice of Econometrics: Classic and Contemporary, Addison-Wesley, 1991.

K. F. Wallis, Topics in Applied Econometrics, Blackwell, 1979.

For specific parts of the programme, additional material will be indicated and made available.

## **Semester**

First semester.

## **Teaching language**

Italian.

## **Sustainable Development Goals**

QUALITY EDUCATION

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